



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

2nd. That an organ over-developed in one direction will be under-developed in some other: *e.g.*, the case of the long bones, already cited.

3rd. That time may be an element in this compensation: *i.e.* in rachitis deficient deposit of bony material may be followed later in the disease by an excessive deposit of it in the same bones.

4th. That the influence of this law may extend from one conception to another, as illustrated by the case related by Meckel.

THE GAME FALCONS OF NEW ENGLAND. THE PIGEON HAWK.

BY WM. WOOD, M.D.

THIS daring and spirited little hawk (*Falco columbarius*), which is peculiar to this continent, is found more or less common all over the United States and extends its migrations beyond the limits both north and south. Dr. Richardson says "it is not uncommon in 57° north latitude." Cassin says "it is found both on the Pacific and Atlantic coast and its locality may be stated as the whole of temperate North America." Audubon found them quite abundant in Texas "where he shot five in a short time." I am somewhat at a loss to know what interpretation to put upon the word abundant as used by Audubon. If it is received according to the common acceptation of the word, it is wholly at variance with my experience, and with that of my collectors, and of those with whom I exchange. The fact of shooting five in a short time proves nothing as to its abundance. They may all have belonged to one brood. Allen, in his ornithological notes on the birds of the Great Salt Lake valley, says that "the pigeon hawk and duck hawk were both frequent." This is I think the most that can be said of the abundance of this hawk anywhere. While it is not uncommon in some sections, in others it is very rare. Nuttall says, "It is, I believe, never seen in New England." For many years I believed that he was correct in this assertion, for, having used my gun quite frequently in Vermont, Massachusetts and Connecticut for twenty-three years prior to 1859, I had

never shot a single specimen ; and furthermore, from 1847 to 1859, many, and probably most, of the hawks shot in this vicinity were brought to me, as it was known my museum was free to all, and consequently every one was interested to increase the number of specimens and enhance the attractions and value of my cabinet, and during this time not a single specimen of the pigeon hawk was brought to my office, although it was generally known that I was very anxious to obtain one. There were probably fifty or more specimens brought to me that the sportsmen called pigeon hawks, consisting mostly of Cooper's, sparrow, and sharp-shinned hawks, mostly the latter. Dr. Crary, of Hartford, who was several years my senior in collecting, had not shot or received a single specimen from New England prior to this time. With these facts before me I was prepared to endorse the assertion of Nuttall. The habits of some of our birds were not as well understood then as at present. We are now aware that oftentimes there is a lapse of several years between the times of visitation. Thus it has been with the pigeon hawk. In 1859 they were as common as any of our Rapacia. In 1860 they were less common, and since that time I have only occasionally received a specimen—one in 1871 and none the past season. They probably have left again for an indefinite period.

This bird when sitting on a tree so closely resembles a pigeon that it will oftentimes deceive the most expert hunter. One of the specimens brought me was shot for a pigeon, and the mistake was not discovered until the bird was picked up. It is from this striking similarity that I suppose it derives its name. Its flight is very rapid, and the daring spirit that it exhibits is not surpassed by any bird of its size, for it will not only attack birds larger than itself, but it has even been known to seize birds suspended in cages beside the house. When shot at and not wounded it will fly in circles over the head of the sportsman uttering short piercing shrieks. The little corporal hawk of Nuttall, and the *Falco temerarius* of Audubon, are one and the same bird, and are now considered by naturalists the adult of the pigeon hawk. At what age it arrives at adult plumage I am unable to say. It certainly is not the first year, and so far as is known to ornithologists it may take several years. It would seem from the testimony of Cassin to be at least three years. He says, "There are three well defined stages exhibited in a large number of specimens before

me." "Of these the adult is easily distinguished and is very nearly as figured by Audubon under the name of *Falco temerarius*, but of the other two plumages we cannot at present determine which is the more mature." This hawk is called by some the bullet hawk on account of its rapid flight. It is one of the most destructive of our rapacious birds. Says Samuels, "As he strikes his prey he almost always, instead of clutching it as it falls, alights after it has fallen, in the same manner as the great-footed hawk."

There seems to be some doubt about its nesting in New England or New York. Says Dr. Brewer, "I have inquired into the matter for the past forty years, and I have yet to know of the first instance of the nest and eggs of the pigeon hawk having ever been found in any part of Massachusetts. That it may breed in some mountainous and wild region is of course possible, and my inability to trace it is only negative testimony." Says G. A. Boardman of Maine, "I have never found the nest of the pigeon hawk, but have no doubt it breeds here, as I shoot it all summer and winter; it probably nests in some thick trees not easily seen. It is not a very common hawk with us." Says Samuels, "It is not improbable that it breeds in New England, although I do not remember of an authenticated instance." Says DeKay, "It is not uncommon in this state (New York). It does not so far as I have ascertained breed here." I have for thirty-six years used my gun in Vermont, Massachusetts and Connecticut, having resided in each of the above named States. I have followed the valley of the Connecticut river to its mouth — have followed the Green mountain range from Vermont into Connecticut without finding the nest of the pigeon hawk. For the last twenty years I have employed collectors in New England to gather birds and eggs for me, and have not received an egg of this bird. (The same can be said of my collectors in other parts of the United States.) Notwithstanding all this negative testimony I am of the opinion that they nest occasionally in New England; for in 1859 I received six specimens of this bird shot in May, June and August, and it seems improbable that six should remain here through the nesting season and not breed. In May, 1860, a gentleman who resides some five miles distant, informed me that a small hawk came almost every day and carried off a chicken for him — that it never missed, for it went so like lightning that there was no escaping its grasp. He said that

it always came in the same direction from a tract of woods near his house. Thinking from his description that it must be either the sharp-shinned, sparrow, or pigeon hawk, and believing that it must have a nest near, and wishing to obtain the eggs, I drove out. Accompanied by my friend, we carefully searched the woods without finding anything except the nest of the red-shouldered hawk. The next day the same little hawk returned and was shot, and is now in my collection, a beautiful representative of the pigeon hawk. I have no doubt that it had a nest about there, as it was the season for nesting, and it always came from, and went to the same piece of woods and in the same direction. If it had not young, it must have been carrying food to its mate while incubating. If a mere straggler, it would come and go without any definite place of resort. Our inability to find the nest was not strange, as there were some sixty or eighty acres of heavy-timbered oaks and pines in the tract.

There seems to be some diversity of opinion as to where they nest, as well as to the color and number of eggs. Hutchins informs us that it nests in hollow rocks and trees about Hudson's Bay—making its nest of sticks and lining it with feathers, and laying from two to four white eggs marked with red spots, while Audubon says "that in Labrador he found three nests placed on the top branches of the low fir trees, composed of sticks slightly lined with moss and feathers, and that each nest contained five eggs of a dull yellowish brown color thickly clouded with irregular blotches of dull dark reddish brown." He also found another nest with five young in it. Nuttall says "that it chiefly inhabits and rears its young in the southern states." Dr. Brewer says Nuttall is probably mistaken, as "The pigeon hawk is distributed in the breeding season throughout the northern part of North America. It breeds as far to the south as Maine on the Atlantic coast, and California on the Pacific." "In every instance when I have heard of the pigeon hawk as a summer resident south of Maine it has proved to be the sharp-shinned hawk (*Accipiter fuscus*)." And furthermore he says, in alluding to its nesting in hollow trees, "This is a condition in which the nest of the pigeon hawk is never found, and one in which no other hawk than the sparrow hawk is ever found." Dr. Abbott of New Jersey claims to have found a nest with young in it in a hollow sycamore tree near Trenton, in May, 1863, and to have found the nest with eggs on an elm tree in 1865. How are these differ-

ences to be reconciled? Further investigation alone can settle them. The egg in my cabinet was taken in Labrador and is well represented on plate first, figure first of Samuels' Ornithology. Long diameter $1\frac{9}{16}$; short diameter $1\frac{4}{16}$.

As I have only one egg, and as the number of specimens I have seen has been quite limited, I cannot speak authoritatively upon the subject. I will only say that the markings are almost exactly like those of the duck hawk described in my previous article on the game falcons of New England. They look like diminutive duck hawk's eggs.

In this as in all birds of prey, so far as I have investigated the subject, the female is the largest and most powerful bird. Female—length, 12 to 14 inches; alar extent, 24 to 27 inches. Male—length, 10 to 12 inches; alar extent, 23 to 25 inches.

The adult male is seldom taken here, perhaps one in twelve or fifteen specimens. As the description of the three stages of plumage is given so accurately by Mr. Cassin, and corresponds with my observations, I will give each stage as described by him.

Adult male. "Entire upper parts bluish slate color, every feather with a black longitudinal line; forehead and throat white, other under parts pale yellowish or reddish white; every feather with a longitudinal line of brownish black; tibiae light ferruginous with lines of black. Quills black, tipped with ashy white; tail light bluish ashy, tipped with white and with a subterminal band of black, and with several other transverse narrower bands of black; inner webs nearly white; cere and legs yellow; bill blue.

Younger. Entire upper plumage dusky brown, quite light in some specimens, and with a tinge of ashy; head above with narrow stripes of dark brown and ferruginous, and in some specimens many irregular spots and edgings of the latter color on the other upper parts. Forehead and entire under parts dull white, the latter with longitudinal stripes of light brown; sides and flanks light brown, with pairs of circular spots of white; tibiae dull white, with dashes of brown; tail pale brown, with about six transverse bands of white, cere and legs greenish yellow.

Young. Upper plumage brownish black, white of the forehead and under parts more deeply tinged with reddish yellow; dark stripes wider than in the preceding; sides and flanks with wide transverse bands of brownish black, and with circular spots of

yellowish white. Quills black; tail brownish black, tipped with white and with about four bands of white; cere and feet greenish yellow."

ON A SECOND EDITION OF THE GEOLOGICAL MAP OF THE WORLD.*

BY JULES MARCOU.

IN 1859 I finished the manuscript of a geological map of the earth, which appeared two years after at Winterthur, Switzerland, in eight sheets, on a scale of $\frac{1}{25,000,000}$. The map, prepared by the learned geographer, my friend M. J. M. Ziegler, on Mercator's plan, although defective as regards certain details of execution resulting from my departure from Zurich to Boston, has, however, been received with favor by geologists as filling a desideratum in science. Some reductions and translations, with my consent, have been made in German, French and English.†

I have now just finished the manuscript of a second edition, intended to be placed in the International Exposition of Vienna, in May, 1873.

Not only have I carefully reviewed all the materials used in preparing the first edition; but also profited by numerous and important additions published during the past fourteen years, and have had in my hands a certain number of inedited geological maps and observations, which have been very liberally furnished by geologists who have explored and inhabited different countries remote and difficult of access. Let us pass in review very succinctly the more important of these new materials.

In the Arctic regions several expeditions have enabled us to color geologically a part of the islands of Spitzbergen, of Greenland, and to modify the geological age of the coal deposits of the islands of Disco, Prince Patrick and Bank's Land. M. Nordenskiöld

*Read before the Boston Society of Natural History, March 19, 1873.

†From the negligence of Messrs. Oscar Fraas and Henry Woodward, my name has been omitted in the German and English editions of the reductions of my map. M. Fraas has apologized for it in a letter that he has written on the subject, while M. Henry Woodward, without any explanation, has contented himself with simply erasing my name from the block of the French edition which appears in "La Terre", by my friend Elisée Reclus.